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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,394	11/20/2003	Bin Li	I-2-0413.1US	9744

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EXAMINER	
LE, AMANDA T	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/718,394	LI ET AL.	
	Examiner	Art Unit	
	Amanda T Le	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 2, 4-6, 8-10, 12, 13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al (US 6,363,102) in view of Admitted Prior Art and Seo et al (US 2002/0163956A1).

Ling et al discloses a method and apparatus for frequency offset correction (see Fig. 3) comprising the following claimed limitations:

In claims 1, 5, 9, 13, 19, "multiplying the spread modulation signal with a first reference signal producing a control bit signal" (130); "multiplying the spread modulation signal with a second reference signal producing a data signal" (120); "delaying said data signal producing a delayed data signal" (180); "multiplying said delayed data signal with weights produced by a

frequency offset estimator and a complex weight gain generator to produce a first set of data" (140, 250, 160, 240, 170, 190).

In claims 2, 6, 10, "the frequency offset estimator performs a frequency offset estimation determined by averaging blocks of pilot signals" (col. 7, lines 34-46).

In claims 4, 8, 12, "said frequency offset estimation is determined using a recursive filter" (col. 7, lines 44-46).

Although Ling et al states that the disclosed receivers are "RAKE fingers" (col. 5, lines 18-30), Ling et al fails to teach that "each RAKE finger delaying the spread modulation signal by a differing amount of time" and "summing the outputs of all the RAKE fingers, producing data symbols and control bit symbols".

Nonetheless, these claimed features are known components of RAKE receivers (see admitted prior art, Fig. 1 of the present application, delays 25A-25N, and Seo et al, Fig. 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Ling et al's RAKE receiver having the frequency offset correction circuit to incorporate the above-described known features of RAKE receivers to achieve the system as claimed. Different amount of delays introduced into different paths separates the signals received through different paths from multipath channel. The summing circuits reconstruct the original data and control information signals from respective signals.

4. Claims 3, 7, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al (US 6,363,102) in view of Admitted Prior Art (APA) and Seo et al (US 2002/0163956A1) as applied to claims above, and further in view of Eilts (US 6393073).

Ling et al, APA, Seo et al, taken collectively, disclose almost all the subject matters claimed, see paragraph 3 above. Ling et al further teaches that "averaging the pilot samples" is used in determining the frequency offset (see col. 7, lines 33-46). The prior art references fail to teach that except for "the frequency offset estimation is determined using a sliding window averaging algorithm".

Eilts teaches that "[f]iltering or averaging the estimate will reduce the noise content and improve accuracy. Candidate approaches for this filtering include the simple boxcar (sliding window) average" (col. 10, lines 8-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the above-described system, using Eilts's teachings, to achieve a system as claimed. That is, using Eilts's disclosure of approaching the "sliding window average" technique to implement Ling et al's "averager" (col. 7, line 46). Such implementation provides an alternate technique for reducing noise content and improving accuracy of estimation as necessitated by the design requirements.

5. Claims 14-18, 20-24 rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al in view of APA, Seo et al, Eilts and Bachl et al.

Ling et al, APA, Seo et al, Eilts disclose almost all the subject matters claimed, see paragraph 3 and 4 above, except for "the pilot signal comprises a DPCCH" (claims 14, 20), "the first despreader outputs despread DPCCH symbols" (claims 15, 21), "the data signal comprises a DPDCH" (claims 16, 22), "the second despreader outputs despread DPDCH symbols" (claims 17, 23), and "the data bit processor outputs TPC and FBI used for closed loop transmission diversity" (claims 18, 24).

Bachl et al discloses a method for improving receivers for the 3GPP standard (see Fig. 1) comprising the following claimed limitations: "the pilot signal comprises a DPCCH", "DPCCh despreader", "DPDCH despreader", "TPC and FBI processor".

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify accordingly the system implemented using Ling et al's, APA's, Seo et al's, Eilts's teachings, as described above, hence enables it to receive 3GPP standard encoded signals. Such modification would result in a RAKE receiver having a frequency offset correction circuit and operating according to the 3GPP standard.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kumura discloses a frequency offset estimator in an OFDM receiver. Song discloses a method for synchronizing frames using pilot patterns in W-CDMA system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda T Le whose telephone number is (571) 272-3052. The examiner can normally be reached on 8:30 A.M. through 2:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Amanda Le

AMANDA T. LE
PRIMARY EXAMINER